

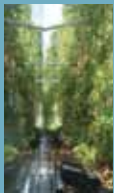
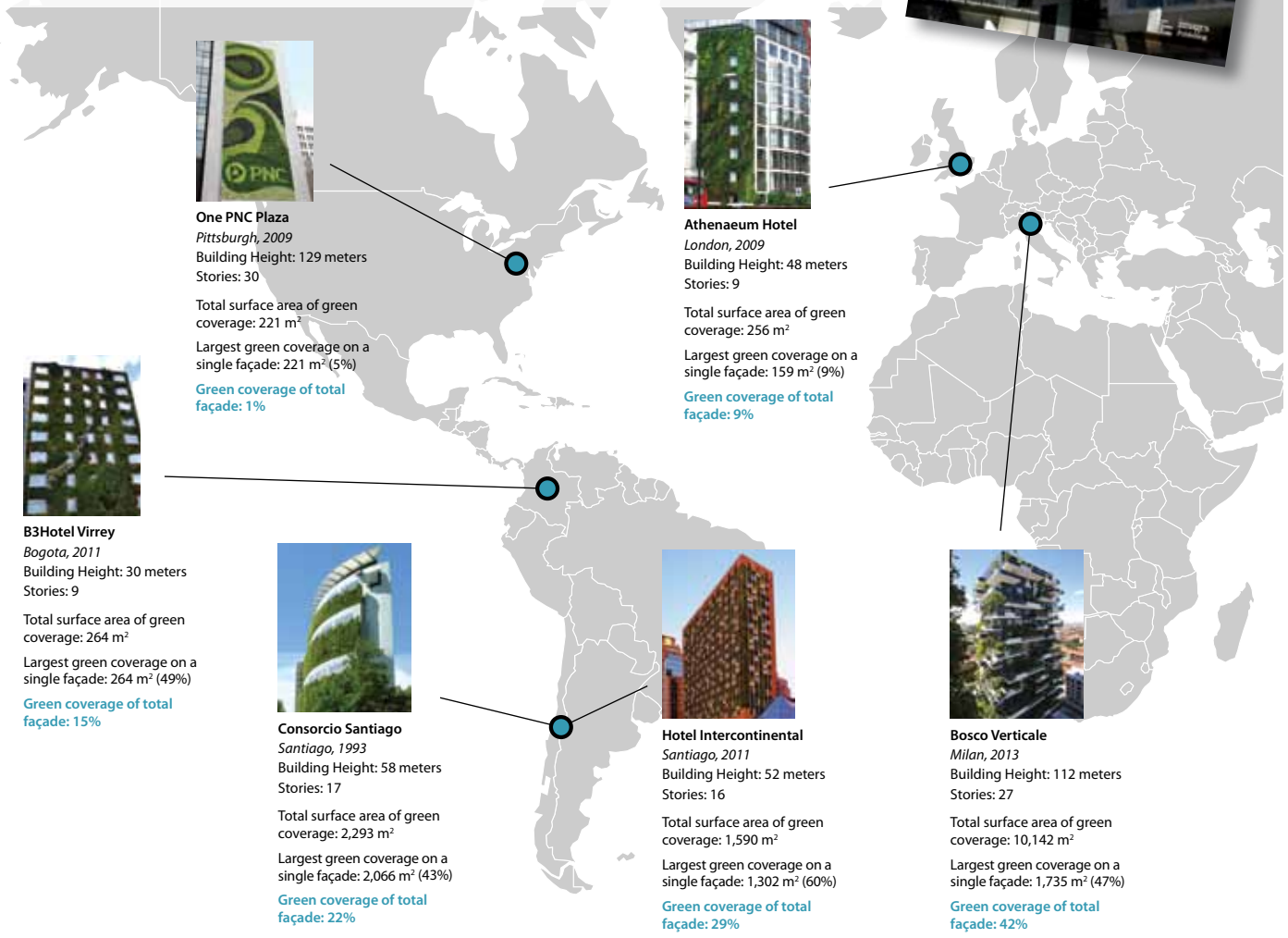
## Green Walls in High-Rise Buildings

For centuries, green walls have been used to shade building walls and atriums, to shield buildings from wind, and to cultivate agricultural plants. Now, as the world population urbanizes, green walls have become a significant tool in the quest for greater sustainability in the tall-building field. The latest CTBUH technical guide, *Green Walls in High-Rise Buildings*, provides a thorough investigation of the methods used around the world for implementation of vertical vegetation at height. In commemoration of the release of this important guide, Tall Buildings in Numbers profiles the 18 case study buildings included.

To purchase your copy of *Green Walls in High-Rise Buildings* visit: <https://store.ctbuh.org>



### Location of Case Studies and Size/Percentage of their Green Coverage



The floors with green walls at Consortio, Santiago, Chile, use 35% less energy than the floors without green walls in the same building.

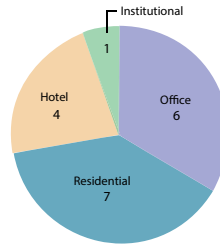


The agriculture and greenery in Pasona Headquarters, Tokyo, Japan, has been attributed to 12% productivity gains and a 23% reduction in employee absences due to ailments.



Singapore's Parkroyal on Pickering provides 215% of the greenery that existed on the site before the building was built.

## Building Functions



Across the 18 case studies, there are four different types of building functions. Green walls are thus clearly applicable across multiple building types and functions.



**Solaris**  
Singapore, 2011  
Building Height: 79 meters  
Stories: 15

Total surface area of green coverage: 3,065 m<sup>2</sup>  
Largest green coverage on a single façade: 1,449 m<sup>2</sup> (N/A)  
**Green coverage of total façade: 15%**



**The Met**  
Bangkok, 2009  
Building Height: 231 meters  
Stories: 69

Total surface area of green coverage: 7,170 m<sup>2</sup>  
Largest green coverage on a single façade: 3,385 m<sup>2</sup> (18%)  
**Green coverage of total façade: 14%**



**IDEO Morph 38 Tower**  
Bangkok, 2013  
Building Height: 134 meters  
Stories: 32

Total surface area of green coverage: 5,850 m<sup>2</sup>  
Largest green coverage on a single façade: 1,276 m<sup>2</sup> (66%)  
**Green coverage of total façade: 23%**



**ACROS Fukuoka**  
Fukuoka, 1995  
Building Height: 60 meters  
Stories: 14

Total surface area of green coverage: 5,326 m<sup>2</sup>  
Largest green coverage on a single façade: 5,326 m<sup>2</sup> (84%)  
**Green coverage of total façade: 28%**



**Pasona Headquarters**  
Tokyo, 2010  
Building Height: 34 meters  
Stories: 9

Total surface area of green coverage: 1,224 m<sup>2</sup>  
Largest green coverage on a single façade: 720 m<sup>2</sup> (37%)  
**Green coverage of total façade: 20%**



**Newton Suites**  
Singapore, 2007  
Building Height: 120 meters  
Stories: 36

Total surface area of green coverage: 1,274 m<sup>2</sup>  
Largest green coverage on a single façade: 734 m<sup>2</sup> (21%)  
**Green coverage of total façade: 10%**



**Gramercy Skypark**  
Makati, 2013  
Building Height: 244 meters  
Stories: 73

Total surface area of green coverage: 189 m<sup>2</sup>  
Largest green coverage on a single façade: 138 m<sup>2</sup> (1%)  
**Green coverage of total façade: 0.4%**



**PARKROYAL on Pickering**  
Singapore, 2012  
Building Height: 89 meters  
Stories: 15

Total surface area of green coverage: 4,827 m<sup>2</sup>  
Largest green coverage on a single façade: 2,257 m<sup>2</sup> (16%)  
**Green coverage of total façade: 11%**



**School of the Arts**  
Singapore, 2010  
Building Height: 56 meters  
Stories: 10

Total surface area of green coverage: 6,446 m<sup>2</sup>  
Largest green coverage on a single façade: 1,434 m<sup>2</sup> (53%)  
**Green coverage of total façade: 26%**



**Helios Residences**  
Singapore, 2011  
Building Height: 94 meters  
Stories: 20

Total surface area of green coverage: 1,652 m<sup>2</sup>  
Largest green coverage on a single façade: 1,142 m<sup>2</sup> (15%)  
**Green coverage of total façade: 7%**



**CH2 Council House 2**  
Melbourne, 2006  
Building Height: 42 meters  
Stories: 10

Total surface area of green coverage: 420 m<sup>2</sup>  
Largest green coverage on a single façade: 420 m<sup>2</sup> (19%)  
**Green coverage of total façade: 7%**



**Trio Apartments**  
Sydney, 2009  
Building Height: 39 meters  
Stories: 16

Total surface area of green coverage: 139 m<sup>2</sup>  
Largest green coverage on a single façade: 139 m<sup>2</sup> (5%)  
**Green coverage of total façade: 0.7%**



The Bosco Verticale, Milan, Italy, has the largest total percentage of green coverage in the guide, at 42%, and the largest total surface-area coverage at 10,142 m<sup>2</sup>.



The tallest green wall in the guide is at The Met, Bangkok, Thailand, rising about 200 meters in a thin strip. The building's overall green wall coverage is about 14%.



One Central Park, Sydney (submitted too late to make the guide) won the CTBUH 2014 Best Tall Building: Asia & Australasia award for its innovative use of heliostats and vertical greenery.